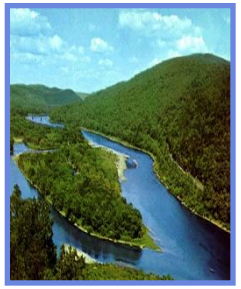
HYDROLOGICS

Advancing the management of water resources

North Central Tennessee - Water Supply Plan Modeling



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Overview

- Review of model schematic
- Review of model inputs
  - Demands
  - Operating policies
  - Reservoir setup
- Preliminary model output

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Review of Model Inputs - Demands Used

Utility	Average Daily Demand
Gallatin	5.7 mgd
Westmoreland	0.383 mgd (from Gallatin)
Castalian Springs-Bethpage	0.895 mgd (0.0174 from Westmoreland, rest from Gallatin)
White House	10 mgd
Portland	2 mgd
Simson Co., KY	1.6 mgd (summer only, from White House)

- Not using emergency interconnects
  - Gallatin to White House
  - Springfield to White House
  - White House to Portland
  - Westmoreland to Portland

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Old Hickory Lake Setup

- Not explicitly modeling Old Hickory
- Set a high inflow to Old Hickory – enough to meet all system demand
- All demands except Portland are met from Old Hickory

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Portland Operations Summary

- By default pump from West Fork Drakes Creek

- Pump from City Lake if:
  - Not enough flow in creek to meet demand (pump the deficit amount)
  - Sept. – Oct. (pump 0.5 mgd)

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City Lake Setup

- Top / Normal pool elevation 681.6 ft
- Volume at normal pool = 88.6 MG
- Area at normal pool = 24 acres
- Assume all storage is usable
- Bottom elevation 651.6 ft

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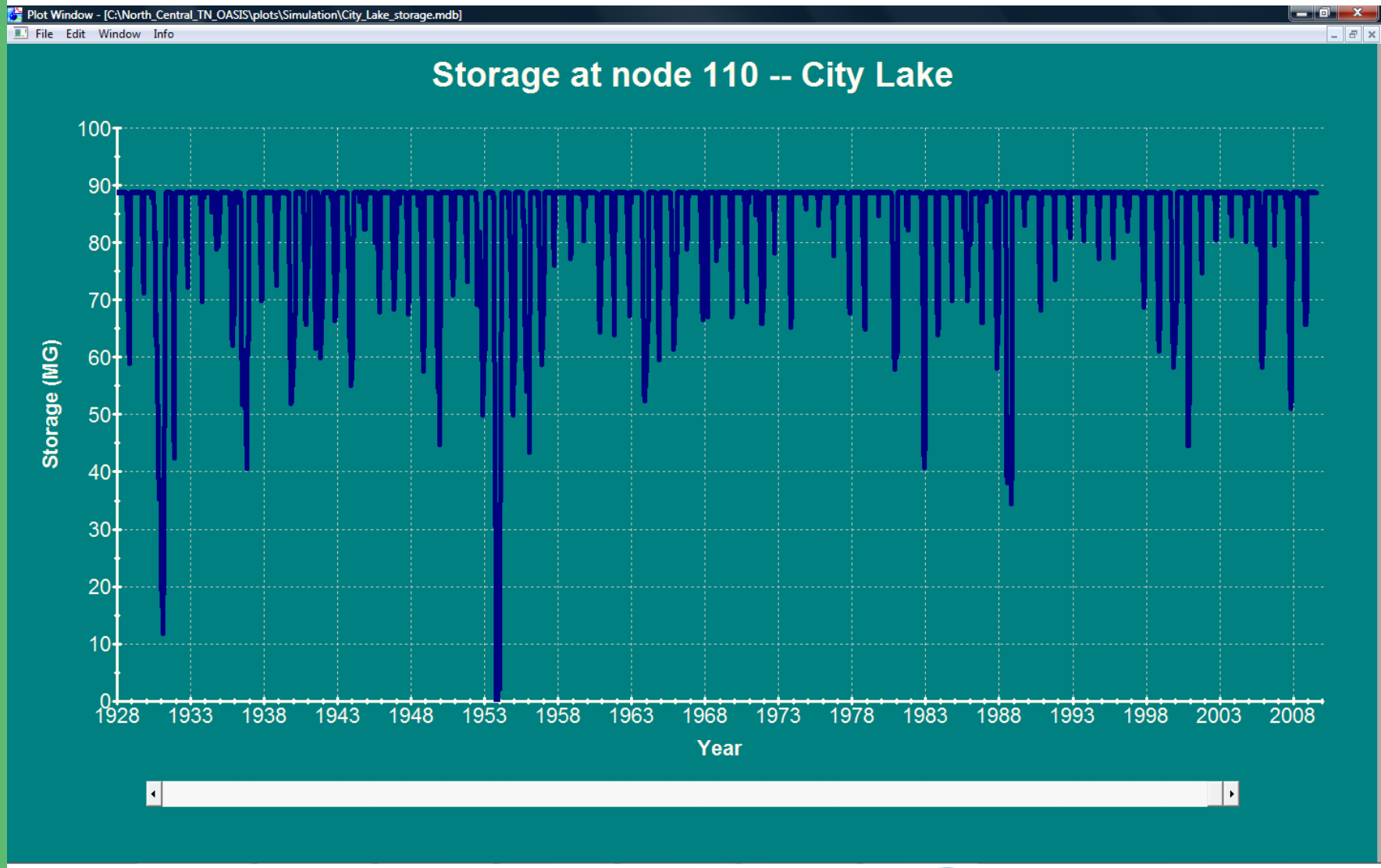
Simulated City Lake Storage for Period of Record



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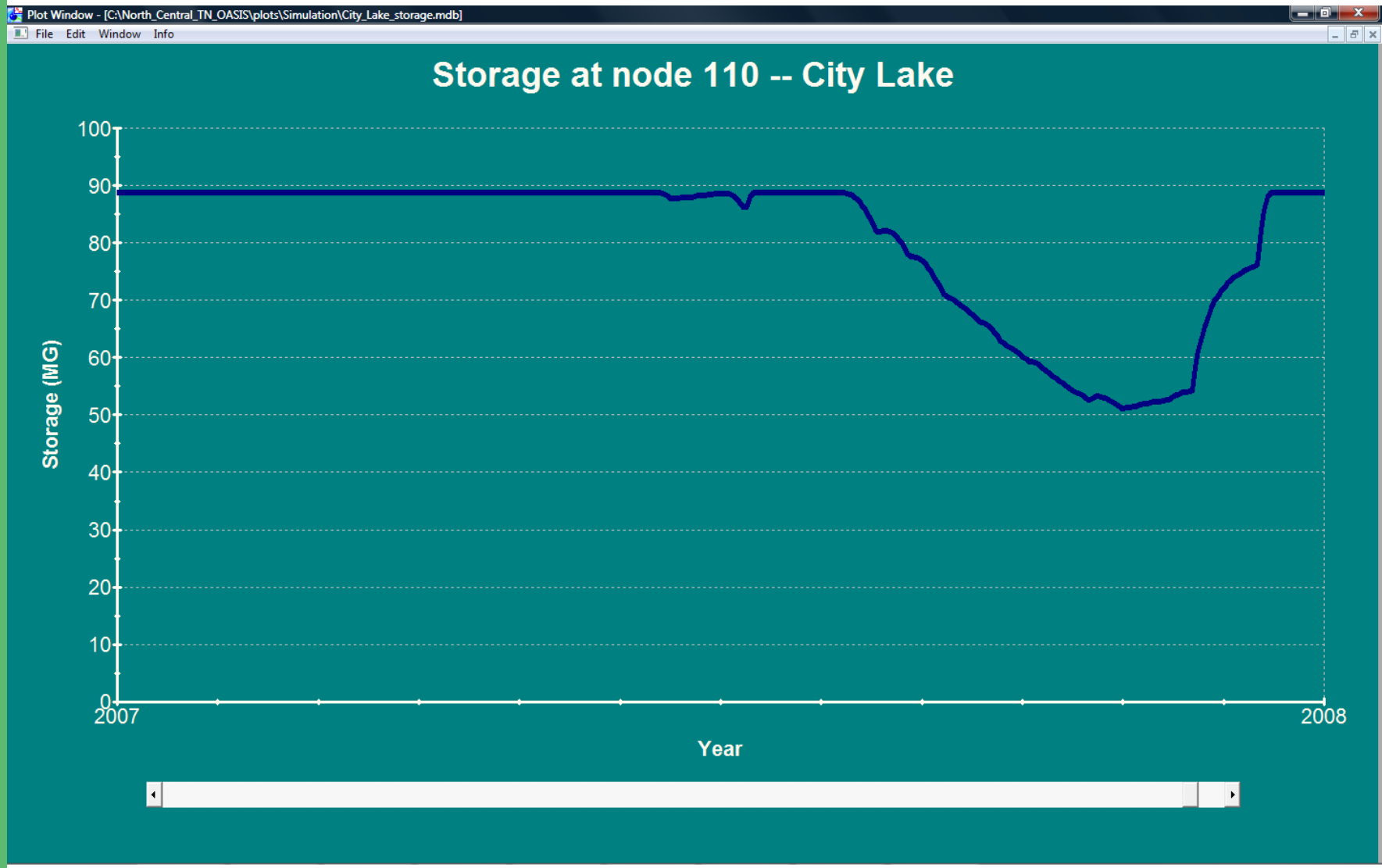
Simulated City Lake Storage for 2007 Drought



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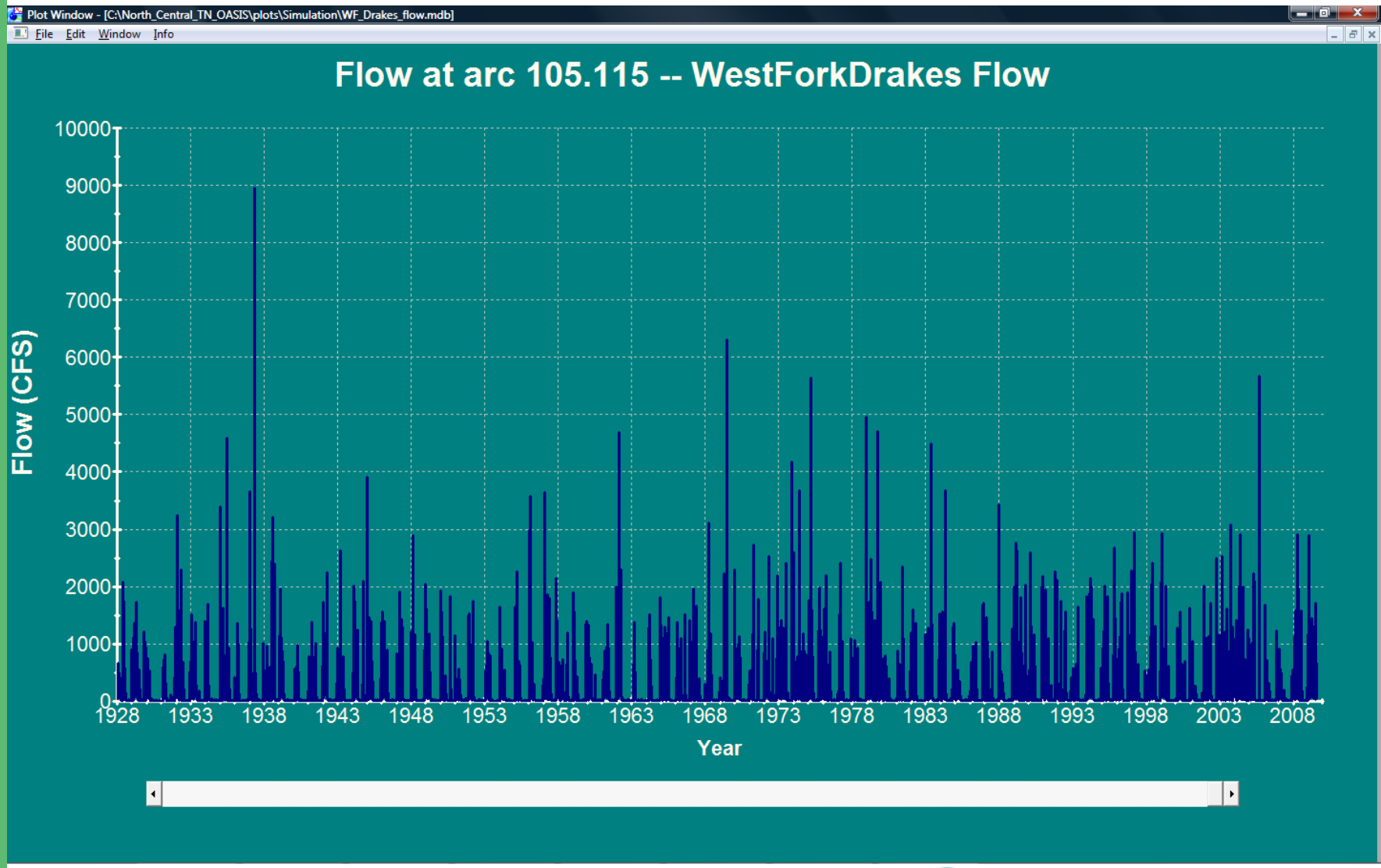
Simulated West Fork Drakes Creek Flows (d/s of intake) for Period of Record



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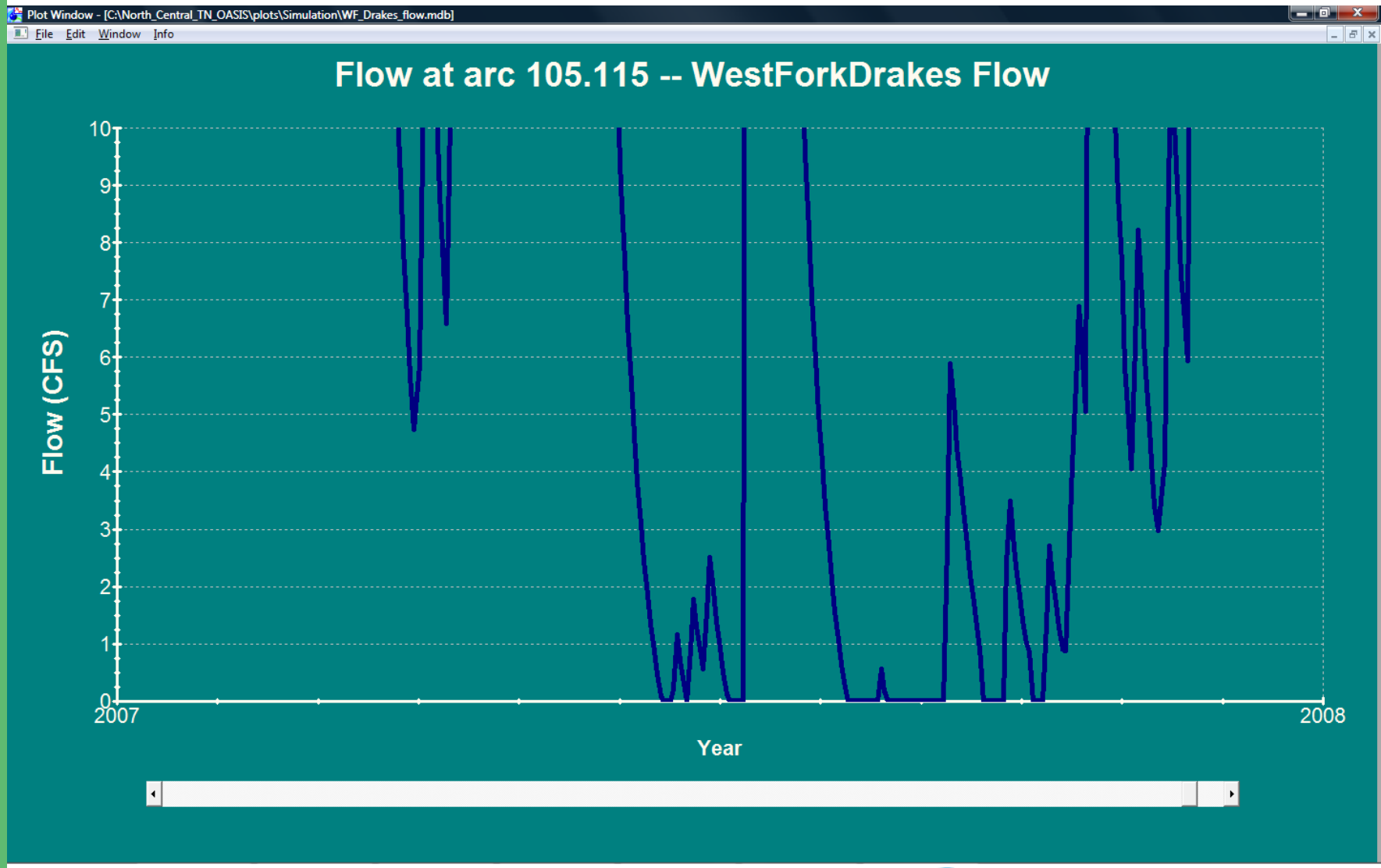
Simulated West Fork Drakes Creek Flows (d/s of intake) for 2007 Drought – focus on flows < 10 cfs



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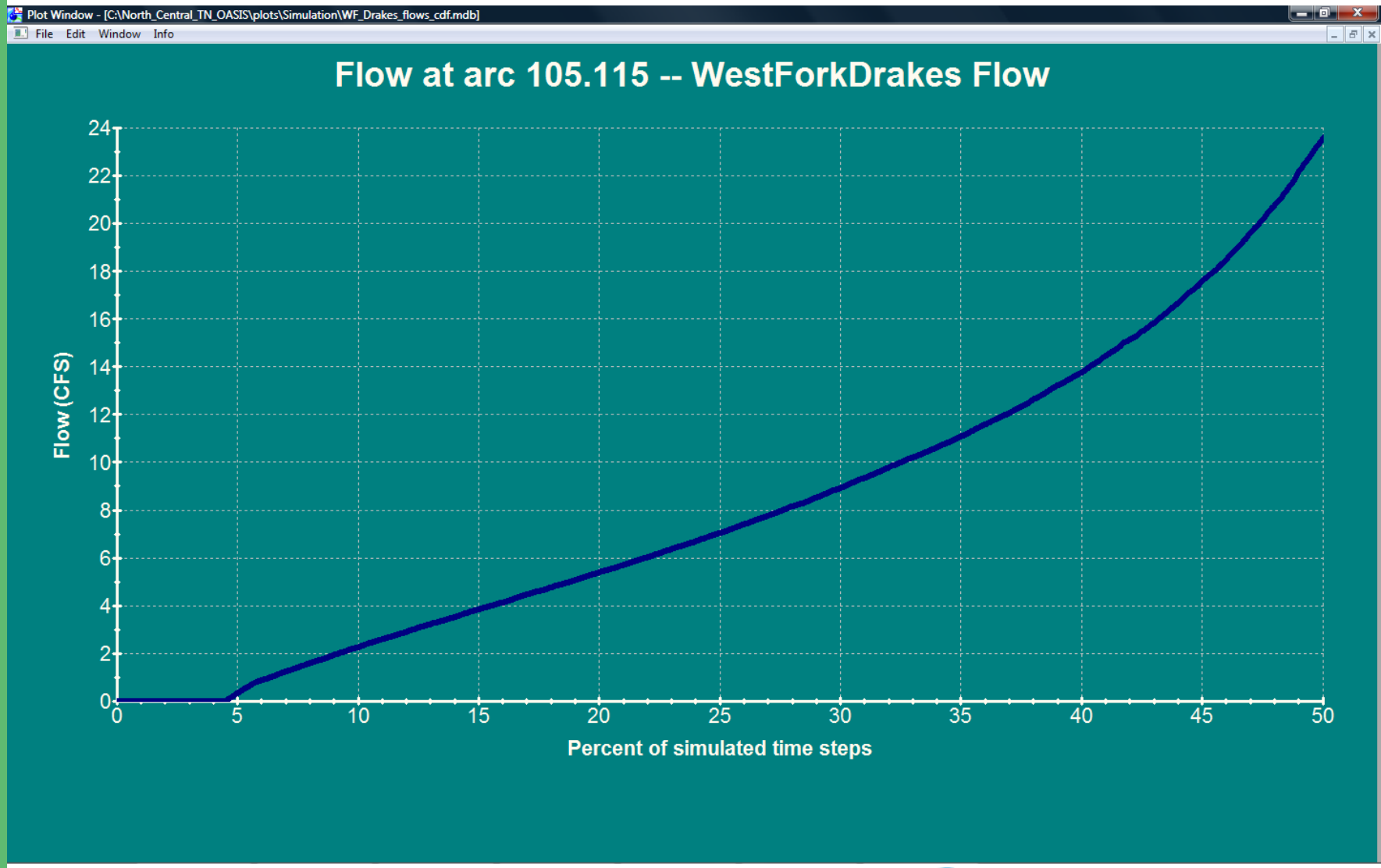
Sorted Simulated West Fork Drakes Creek Flows (d/s of intake) for Period of Record



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